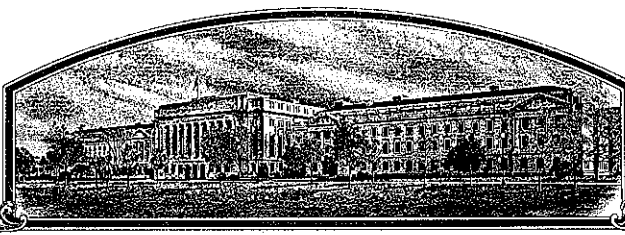


No.

9100220



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

**Tom G. Kurupas Farming**

Whereas, THERE HAS BEEN PRESENTED TO THE  
**Secretary of Agriculture**

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS SEED OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS PROVIDED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

ARTICHOKE

'Emerald'

In Testimony Whereof, I have hereunto set  
my hand and caused the seal of the Plant  
Variety Protection Office to be affixed  
at the City of Washington, D.C.  
this 31st day of July in  
the year of our Lord one thousand nine  
hundred and ninety-two.

Attest:

*Kenneth H. Evans*  
Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

*Edward M. Madigan*  
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE

# APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) <b>Tom G. Kurupas Farming</b>		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO. <b>TK-102</b>	3. VARIETY NAME <b>Emerald</b>
4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP) <b>1004 Clark Rd. El Centro Ca. 92243</b>		5. PHONE (Include area code) <b>(619)-352-3285</b>	<b>FOR OFFICIAL USE ONLY</b> PVPO NUMBER <b>9100220</b> F I L I N G Date <b>July 23, 1991</b> Time <input type="checkbox"/> A.M. <input type="checkbox"/> P.M. F E E S Filing and Examination Fee: <b>\$ 2150. -</b> Date <b>July 23, 1991</b> Certificate Fee: <b>\$ 250. 00</b> Date <b>June 28, 1992</b>
6. GENUS AND SPECIES NAME <b>Cynara Scolymus L.</b>	7. FAMILY NAME (Botanical) <b>Compositae</b>		
8. CROP KIND NAME (Common Name) <b>Globe Artichoke</b>	9. DATE OF DETERMINATION <b>1987</b>		
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) <b>Person</b>		12. DATE OF INCORPORATION	
11. IF INCORPORATED, GIVE STATE OF INCORPORATION			

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS

**Tom G. Kurupas Farming  
1004 Clark Rd.  
El Centro, Ca. 92243**

PHONE (Include area code): **(619) 352-3285**

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow INSTRUCTIONS on reverse)

- a. ☒ Exhibit A, Origin and Breeding History of the Variety
- b. ☒ Exhibit B, Novelty Statement
- c. ☒ Exhibit C, Objective Description of Variety
- d. ☒ Exhibit D, Additional Description of Variety
- e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership
- f. ☒ Seed Sample (2,500 viable untreated seeds) Date Seed Sample mailed to Plant Variety Protection Office **6-27-91**
- g. ☒ Filing and Examination Fee (\$2,150) made payable to "Treasurer of the United States."

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See section 83(a) of the Plant Variety Protection Act.)

☒ YES (If "YES," answer items 16 and 17 below) ☐ NO (If "NO," skip to item 18 below)

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?

☒ YES ☐ NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?

☒ FOUNDATION ☒ REGISTERED ☐ CERTIFIED

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?

☐ YES (If "YES," through ☐ Plant Variety Protection Act. ☐ Patent Act. Give date: \_\_\_\_\_)  
☒ NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETING IN THE U.S. OR OTHER COUNTRIES?

☐ YES (If "YES," give names of countries and dates)  
☒ NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT [Owner(s)] <b>Tom Kurupas</b>	CAPACITY OR TITLE <b>Owner</b>	DATE <b>6-27-91</b>
SIGNATURE OF APPLICANT [Owner(s)]	CAPACITY OR TITLE	DATE

## Exhibit A

## Origin and Breeding History of the "Emerald" Artichoke

In 1981 an artichoke cross was made at the USDA Field Station in Brawley, California using pollen from an individual plant selection out of an artichoke line originally from France and obtained from Dr. R.C. Tang of the Desert Seed Co. and an individual plant from an Italian line from Bari, Italy via Dr. Vince Rubatzky at U.C. Davis.

The F1 grown in 1982 showed distinct hybrid vigor. Bud types were variable but all of acceptable types. An F2 population of 60 plants grown in 1983 segregated very widely and manifested many characteristics not apparent in either parent. Among these was an extreme thorniness (thorns on leaf tips and petioles).

Multiple sib crosses were made between plants with similar characteristics in 1984. In 1984 two similar plants were sib crossed. This seed line eventually became "Emerald" through mass increases and selection pressures.

Mass selection techniques were conducted in the five years--198<sup>7</sup> through 1991. This mass selection was made for earliness, uniformity, high seed yield, yield potential and bud characteristics which led to the development of the "Emerald" variety.

per  
applicant  
2/27/92  
JMS 6/15/92

## ADDENDUM TO EXHIBIT A

line 83-035

I received the F2 seed from Joseph Principe, U.S.D.A. plant breeder working at the U.S.D.A. station in Brawley, California (619-344-4184) in June of 1987. Mr. Principe gave me a limited amount of seed from crosses of material he was working with. Actually from 1987 when I received the seed to 1991, there was four breeding years. I planted the seed on a small ranch I own in Imperial Valley. I made continuous sib crosses and used the best material for mass selections.

per  
applicant  
letter  
enclosure  
7/23/91  
JMS  
6/15/92

The original F2 plants were rough. I rogued heavily over four years to eliminate purple on the lower bracts, thorns and to maintain a uniform glossy green appearance which the F2 didn't always have. At least 90% of the Emerald buds are uniform. The remaining 10% could still be marketable in fruit stands.

## Exhibit A

I have judged the uniformity and stability of the "Emerald" variety for five years. I received a few F2 seeds from Joe Principe a plant breeder at the U.S.D.A Field Station in Brawley, California in June 1987. My five breeding years were (1987-1988) (1988-1989) (1989-1990) (1990-1991) (1991-1992). The "Emerald" appears now to be stable and uniform through sib crossing and planting these selections for mass crossing. Heavy roguing of undesirable characteristics over the years has produced an attractive glossy green variety, that is unusual and different than any other variety grown today.

Exhibit B  
Summary Statement of Variety's Novelty

The "Emerald" variety is unique in a variety of overall appearances:

Novel, Bract and Bud Color

The "Emerald" variety has a glossy emerald green color both in bud and bract and is more uniform than any other variety grown in the Imperial Valley including "Imperial Star," and "Big Heart XR-1." The aforementioned varieties both have a considerable amount of purple on the lower bracts of which "Emerald" does not.

Spineless Plants and Buds

The "Emerald" variety has no thorns in its growing characteristics.

Achene Color

The "Emerald" variety seed is predominantly grey to medium grey in color.

Cotyledon Appearance

"Emerald" has no albino lethal such as that found in the "Imperial Star" variety. This is a characteristic that sets it apart from "Imperial Star."

ADDENDUM TO EXHIBIT B

There is no other variety like "Emerald" at the present time. The bud and bract characteristics of the "Emerald" are a glossy deep green color. Because of the intense roguing by me to eliminate the unwanted characteristics of the F2 line 83-035 such as; the purple on the lower bract, thorns and a pineapple shape which occurred during the first two years of mass selections. Thus I was able to develop an outstanding new line.

I submitted many color photos of the Imperial Star and Big Heart XR2 which plainly shows the distinct difference between the "Emerald" and the two aforementioned varieties.

"Emerald" has 0% albino lethals and is thornless as well.

Exhibit B  
Summary Statement of Variety's Novelty

In response to your letter of March, 1992 under Exhibit A: I firmly believe beyond a shadow of a doubt in observing many varieties of artichokes growing in the Imperial Valley area, that the "Emerald" variety developed by me to be much more uniform than the Big Heart XR1 or the Imperial Star. Although the afore mentioned varieties are thornless to a high degree, there the similarity ends. The Big Heart XR1 has many off types as far as uniformity, (see photo) from pointed buds to a round characteristic. Much purple is observed on almost every bud of this variety as seen on photos that I submitted.

The Imperial Star also is thornless to a large degree, but has a different shaped bud (see photo) than either than the Big Heart XR1 or the "Emerald". Other photos that I submitted to you shows the Imperial Star as having a moderate amount of purple on the lower bracts, whereas none on the "Emerald". The bracts of the Imperial Star are also different as compared to the ovidal shape of the "Emerald" bracts. The Imperial Star and Big Heart XR1 have a lower percentage of glossy green buds than the "Emerald" variety.

All the other artichokes that I have seen from Castroville, California (see Ocean Mist) have thorns, are not glossy green, have a great amount of purple on the lower bracts and the bracts are not ovidal in shape as the "Emerald".

The artichokes I have seen grown from seed produced in Castroville, have a genetic background so mixed that the resulting plants and buds have many undesirable traits. This is why all of the new plantings are from rooted offshoots. No true to type seed is available for direct seeding in that area. This fact also makes "Emerald" unique and unusual because my seed produces a very high percentage of true to type buds.

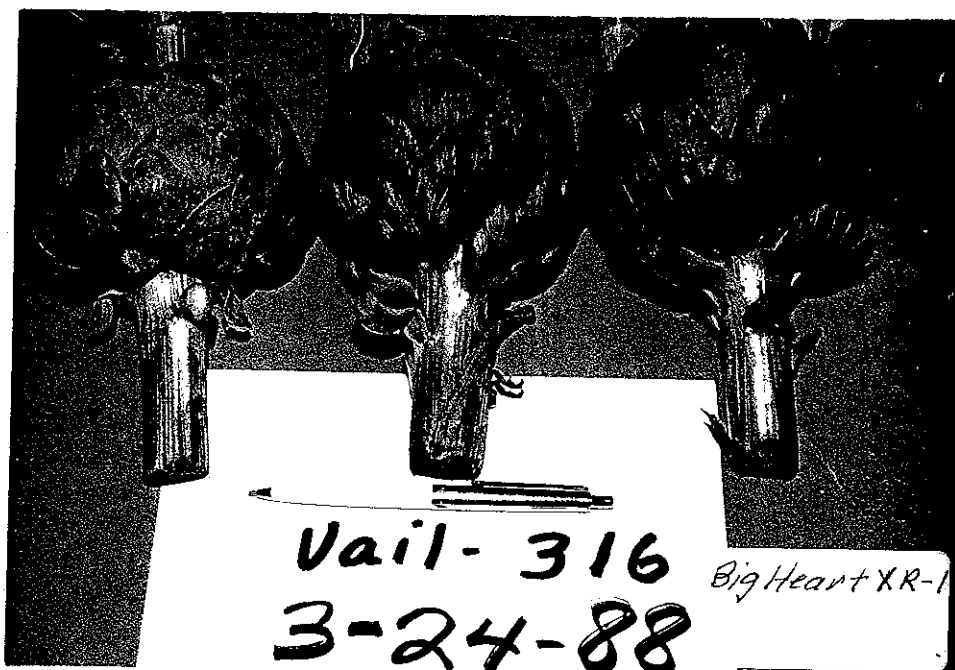
9100220

5/11/91



Photo 4-14-91  
Germ date 9-25-90  
TK-102 Emerald  
Thornless

Lower bracts of Emerald are glossy emerald green.  
No purple is present on the bracts.



Vail-316  
3-24-88  
Big Heart XR-1

Lower bracts of Big Heart XR-1 have a considerable amount of purple.

9100220

Exhibit B



Lower bracts of Imperial Star have a considerable amount of purple.



Plant Variety Protection Office  
NAL Building, Rm. 500  
10301 Baltimore Blvd.  
Beltsville, MD 20705-2351

## OBJECTIVE DESCRIPTION OF VARIETY

GLOBE ARTICHOKE (*Cynara scolymus* L.)

NAME OF APPLICANT(S) Tom G. Kurupas	TEMPORARY DESIGNATION TK-102	VARIETY NAME Emerald
ADDRESS (Street & No., or R.F.D. No., City, State, & 1004 Clark Road ElCentro, Ca. 92243	FOR OFFICIAL USE PVPO NUMBER	

Place the appropriate number that describes the varietal characters typical of this variety in the boxes below. When the number of significant digits is fewer than the number of boxes, place a zero in the first box or boxes. All characters need not be described; however, completeness should be striven for to establish an adequate variety description. Name and provide Check variety data where indicated. Several seed propagated check varieties are 'Green Globe', 'Talpiot', and 'Texas Hill'.

## 1. MARKET MATURITY:

121010 No. Days from Seeding to 1st Head Harvest1213101 Ditto for Check Variety (Name) Big Heart XR-1140 No. Days in Harvest Period 150 Check Big Heart XR-1

## 2. PLANT: (Harvest Stage)

Height: 1450cm 1440cm Check Big Heart XR-1Habit: 1 1=upright 2=intermediate 3=broad104 No. Axillary Shoots 103 Ditto for Check Big Heart XR-1

9100220

## 3. LEAF: (Harvest Stage)

Color: 14 1=light green 2=medium green 3=dark green 4=gray greenSpines: 11 1=none 2=few 3=manyBlade Length: 17 16 cm Blade Length: 19 5 cm Check Big Heart XR-1Blade Width: 15 0 cm Blade Width: 15 10 cm Check Big Heart XR-1Petiole Length: 1 18 cm 11 5 cm Check Big Heart XR-1Shape: 13 1=entire 2=slightly lobed 3=deeply lobedLeaf Shape Variability: 11 1=slight 2=moderate 3=high

## 4. PRIMARY FLOWER HEAD: (Harvest Stage)

Shape: 13 1=cylindrical 2=conical 3=ovoid 4=elipsoidBase Diameter: 1 11 cm 11 0 cm Check Big Heart XR-1Length or Depth: 11 1 cm 11 1 cm Check Big Heart XR-1Bract Tightness: 13 1=loose 2=moderately compact 3=compactExternal Bract Color: 10 1=light green 2=mid green 3=dark green  
4=green with purple tint 5=green with brown tint 6=green with  
purple tip 7=green with purple-brown tint 8=purple with green  
tint 9=purple 10=other(specify) predominantly glossy greenInternal Bract Color: 11 1=whitish-green 2=yellow-green 3=strawBract Spines: 11 1=none 2=few 3=manyBract Shape: 2 1=round 2=oval 3=elongatedBract Tip Shape: 12 1=entire 2=slightly notched 3=deeply notchedBract Length: 1 65 mm 18 4 mm Check Big Heart XR-1Bract Width: 14 4 mm 17 15 mm Check Big Heart XR-1Peduncle Length: 1 1 cm 1 1 cm Check not measuredPeduncle Diameter: 12 18 mm 12 6 mm Check Big Heart XR-1Weight per Primary Head: 13 12 grams 13 10 g Check Big Heart XR-1No. Primary Heads/Plant: 10 1 1 1 Ditto Check Big Heart XR-1

9

9100220

## 5. SECONDARY FLOWER HEAD:

Weight per Head: 128 14 grams 18 18g Check Big Heart XR-1No. Heads/Plant: 13 4 8 14 Ditto Check Big Heart XR-1

## 6. FLORET:

Color: 16 1=white 2=pink 3=red 4=purple 5=blue 6=other blue/lavenderDiameter: 1 1 mm not measured1 1 1 No. per Primary Head 1 1 1 Ditto Check not counted

## 7. ACHENE:

Color: 11 1=monocolor 2=bicolorColor Pattern: 13 1=speckling 2=striping 3=other plainPrimary Color: 15 1=tan 2=brown 3=blue 3=green 4=black  
5=other grey to medium greySecondary Color: 1 1 (Choose from above -- specify other) noneSeed Weight: 4 15g/1000 achenes 1 1 1 Ditto Check Big Heart XR-1

## 8. ANTHOCYANIN: (1=absent; 2=noticable; very noticable)

1 1 Leaf Petiole 1 1 Leaf Blade 2 1 Peduncle 13 1 Petal1 1 Head Bract 1 1 Bract Spine 1 1 Leaf Spine 1 1 Pappus1 1 Achene 1 1 Other (Specify) \_\_\_\_\_

## 9. DISEASE REACTION: (Enter 0=Not Tested; 1=Susceptible; 2=Resistant)

1 0 Botrytis Rot (Botrytis cinerea) 1 0 Curly Dwarf Virus1 0 Black Tip Syndrome 1 1 Other None seen in last 5 years of selection

## 10. INSECT REACTION: (Enter 0=Not Tested; 1=Susceptible; 2=Resistant)

1 0 Plume Moth (Platyptilia carduidactyla) 1 1 Aphid1 0 2-Spotted Spider Mite 1 0 Chrysanthemum Leafminer1 0 Cribrate Weevil 1 1 Other \_\_\_\_\_

9100220

## 11. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED

CHARACTER	VARIETY NAME	CHARACTER	VARIETY NAME
Plant Habit	Big Heart XR-1	Peduncle Length	Big Heart XR-1
Leaf Size	Big Heart XR-1	No. 1st Heads	Big Heart XR-1
Leaf Shape	Big Heart XR-1	No. 2nd Heads	Imperial Star
1st Head Size	Imperial Star	Maturity	Big Heart XR-1

## PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Ryder, E.J., N.E. De Vos, and M.A. Bari. 1983. The globe artichoke (*Cynara scolymus* L.). HortScience 18(5):646-653.

//

Exhibit D  
Additional Description of Variety

General Observations

The "Emerald" variety resembles "Big Heart XR-1" variety in head and bud size only, and is extremely uniform in comparison to "Big Heart XR-1."

Flower Head Characteristics

The "Emerald" variety has an attractive overall glossy green color. Bracts are thornless and ovoidal in shape and has tips that retuse to emarginate. The bracts remain fairly tight and do not flare with increasing maturity.

Uniformity of the "Emerald" variety makes for a high percentage of marketable buds of the 24 count size.

Achene Appearance

The "Emerald" variety produces seed that has grey to medium grey color, and is also a good heavy seed producer.

Achene Germination and Cotyledon Appearance

The "Emerald" variety does not exhibit the black seed characteristics of the "Imperial Star" nor the white Cotyledon of the "Imperial Star."

Earliness and Harvest Period

The "Emerald" variety matures two weeks earlier than "Big Heart XR-1;" a 40 day harvest duration in comparison to "Big Heart XR-1" of 50 days.

Exhibit E  
Statement of Basis of Applicants' Ownership

Origin and Breeding History of the "Emerald" Artichoke

In 1975 I was given artichoke germplasm by Dr. R.C. Tang of Desert Seed Co. Origins of this line was from France.

After years of my own breeding, we failed to breed a good commercial line. In June 1987, Joseph Principe, USDA breeder at the research station in Brawley, California, released germplasm breeding lines. Note:(see USDA Artichoke Germplasm Breeding Lines release.)

From Ed Ryder, USDA Salinas, California, I attained a small amount of seed from F2, lot # 83-035, and two other lines of which the lot numbers were lost. Intense breeding over the past few years has resulted in a different line that is outstanding in size, shape, in the lack of purple colorations on the lower bracts, thornless, uniformness and with early high-yield potential.

ADDENDUM TO EXHIBIT E

The following is a statement by Joseph Principe a plant breeder, working at the U.S.D.A. Agricultural Station in Brawley, California. He would be glad to talk with you regarding the "Emerald", Imperial Star and Big Heart XR1 lines. The U.S.D.A. station telephone is 619-344-4184.

Quote by Joseph Principe:

"Line 83-035 an F2 from F1 of an artichoke line from France (via Dessert Seed Co.) and a line from Bari, Italy (via V. Rubatski, U.C. Davis); and the line 86-024 a fourth generation from in line sibbing out of 83-035 were released by U.S.D.A. through Dr. E.J. Ryder, U.S.D.A., Salinas, California. Dr. Ryder does not believe in patents and told me to release the lines to any interested parties. The artichoke patented line "Imperial Star" came directly out of 86-024 released by me. Keith Mayberry of the University of California Meloland Field Station in Meloland, California did the mass selecting and seed increase of "Imperial Star". The "Emerald" variety came directly from a release of line 83-035."